

Serial No. 10/626,233
Docket No. NEC 1030 DIV
Amendment D Under Rule 1.116

AMENDMENTS TO THE CLAIMS:

Claims 1-6, 11, 13-14, 18, and 20-31 are pending. Kindly amend claims 1 and 2, as shown below.

This listing of claims will replace all prior versions and listings of claims in the Application:

Claim 1 (currently amended): A semiconductor device manufacturing apparatus that uses a thermal CVD reaction to deposit a film onto a substrate, said apparatus having a vaporizer for vaporizing a raw material to form a vapor phase deposition material deposited in crystalline form, and a power supply for supplying a d.c. electrical potential across said substrate or said film deposited thereupon, said supplied d.c. electrical potential being used to orient the crystal of said vapor phase material an orienting element using a d.c. electrical potential for orienting precursor molecules in the direction of the electrical field induced by said d.c. electrical potential.

Claim 2 (currently amended): A semiconductor device manufacturing apparatus according to claim 1, wherein said orienting element comprises a power supply supplies for supplying said d.c. electrical potential to said substrate or said film deposited thereupon, either directly or indirectly.

Claim 3 (previously presented): A semiconductor device manufacturing apparatus according to claim 2, wherein said power supply comprises a power supply source and electrode terminals which are connected to said power supply source and to said substrate or said film deposited thereupon.

Claim 4 (previously presented): A semiconductor device manufacturing apparatus according to claim 2, wherein said power supply further comprises a d.c. electrical potential

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controller which controls said potential to be supplied to said substrate or said film deposited thereupon.

Claim 5 (previously presented): A semiconductor device manufacturing apparatus according to claim 4, wherein said d.c. electrical potential controller controls said potential to be supplied to said substrate or said film deposited thereupon, either continuously or intermittently.

Claim 6 (previously presented): A semiconductor device manufacturing apparatus according to claim 4, wherein said electrode terminals are provided on peripheral area of either said substrate or a region on which said film being deposited on said substrate.

Claims 7-10 (cancelled)

Claim 11 (previously presented): A semiconductor device manufacturing apparatus according to claim 4, wherein said d.c. electrical potential controller controls said voltage applied to at least one of a pair of electrode terminal units so as to change said voltage value, either continuously or intermittently with respect to the time elapsing.

Claim 12 (cancelled)

Claim 13 (previously presented): A semiconductor device manufacturing apparatus according to claim 4, wherein said d.c. electrical potential controller further includes a detector for detecting either one of potential and voltage applied to said substrate or said film deposited thereupon whereby said d.c. electrical potential controller controls the value of either said potential or said voltage in response to a result of said detector.

Claim 14 (previously presented): A semiconductor device manufacturing apparatus according to claim 4, said apparatus further provided with a temperature controller for controlling the temperature of electrode terminal units and wherein said d.c. electrical potential

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controller further includes a detector for detecting either one of potential or voltage applied to said substrate or said film deposited thereupon whereby said temperature controller controls temperature so as to change a temperature of said substrate or said film deposited thereupon, in response to a result of said detector.

Claims 15-17 (cancelled)

Claim 18 (previously presented): A semiconductor device manufacturing apparatus according to claim 2, wherein said power supply comprises a power supply source and a non-contact electrical potential supply which is connected to said power supply source and supplying said d.c. electrical potential to said substrate or said film deposited thereupon, without making said potential supply be directly connected thereto.

Claim 19 (cancelled)

Claim 20 (previously presented): A semiconductor device manufacturing apparatus according to claim 18, wherein said power supply further comprises a potential controller which controls value of said potential to be applied to said non-contact electrical potential supply.

Claim 21 (previously presented): A semiconductor device manufacturing method for depositing a film on a substrate by a thermal CVD reaction, wherein a raw material is vaporized to form a vapor phase deposition material, and said film is deposited on said substrate while a d.c. electrical potential is applied across said substrate or film deposited thereupon, for orienting the crystal of said vapor phase material in the direction of the electrical field induced by said d.c. electrical potential.

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Claim 22 (previously presented): A semiconductor device manufacturing method according to claim 21, wherein said film is deposited while the d.c. electrical potential on said substrate or film deposited thereupon is arbitrarily set.

Claim 23 (previously presented): A semiconductor device manufacturing method according to claim 21, wherein said film is deposited while the d.c. electrical potential is applied to said substrate or said film deposited thereupon, intermittently.

Claim 24 (previously presented): A semiconductor device manufacturing method according to claim 21, wherein said film is deposited while said d.c. electrical potential is varied either intermittently or continuously.

Claim 25 (previously presented): A semiconductor device manufacturing method according to claim 21, wherein said film is deposited while a direction of said d.c. electrical potential applied to said substrate or said film deposited thereupon, is changed, either intermittently or continuously.

Claim 26 (original): A semiconductor device manufacturing method according to claim 21, wherein said film is deposited while a temperature of said substrate or of said film deposited thereupon, is varied.

Claim 27 (previously presented): A semiconductor device manufacturing method according to claim 21, wherein either one of a voltage value or a potential value is varied either intermittently or continuously.

Claim 28 (previously presented): A semiconductor device manufacturing method according to claim 21, wherein said film is deposited while setting the potential of said substrate or film deposited thereupon to a ground potential.

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Claim 29 (previously presented): A semiconductor device manufacturing method for depositing a film on a substrate by a thermal CVD reaction, wherein a d.c. electrical potential is applied across said substrate or film deposited thereupon without making contact with said substrate or film deposited thereupon.

Claim 30 (original): A semiconductor device manufacturing method according to claim 29, wherein magnetic flux is applied to said substrate or film deposited thereupon.

Claim 31 (previously presented): A semiconductor device manufacturing method comprising:

depositing a film into a substrate using a thermal CVD reaction; and

depositing a film from a thermal CVD reaction by applying a d.c. electrical potential across either one of said substrate and said deposited film, for orienting the crystal of said vapor phase material in the direction of the electrical field induced by said d.c. electrical potential.

Claim 32 (cancelled)

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